



JP Specialties, Inc. / Earth Shield® Waterstop

Tech Tips 035

UV Resistance of Thermoplastic Vulcanizate (TPV) Waterstops: Performance and Advantages

25811 Jefferson Avenue
Murrieta, CA 92562
T 19517637077
davidp@jpspecialties.com
<https://www.jpspecialties.com>



by David R. Poole CSI, ACI, Assoc. AIA

Waterstops are a critical component in concrete construction and expansion joints, designed to prevent the passage of water or fluids through concrete structures such as foundations, tunnels, and water treatment plants. Among the various materials available, Thermoplastic Vulcanizate (TPV) waterstops, such as those in the Earth Shield® product line from JP Specialties, Inc., have gained widespread use due to their exceptional chemical resistance,

Earth Shield® Tech Tip #035 (all material copyright 2025) publication date: 07/06/25



JP Specialties, Inc. / Earth Shield® Waterstop

flexibility, and notably, their UV resistance, making them ideal for above-grade and exposed applications.

Thermoplastic Vulcanizates (TPVs) are the apex of the thermoplastic elastomer (TPE) family. They combine the processing advantages of thermoplastics with the flexibility and resilience of vulcanized rubber. TPV waterstops from J P Specialties, Inc., are widely recognized for their durability, weatherability, and chemical resistance.

25811 Jefferson Avenue
Murrieta, CA 92562
T 19517637077
davidp@jpspecialties.com
<https://www.jpspecialties.com>

In the context of waterstops, TPV provides:

- Excellent chemical resistance to acids, bases, and other aggressive fluids
- Flexibility for accommodating joint movement
- Heat resistance for high-temperature environments
- Outstanding UV resistance for exposed conditions

UV resistance is critical for waterstops that may be exposed to sunlight during storage, installation, or in-service life, especially in above-grade or partially exposed environments like:

- Slabs on-grade
- Water tanks with open tops
- Exposed concrete joints in infrastructure projects
- Bridges and elevated decks
- Wastewater treatment plants
- Open-air tanks and reservoirs



JP Specialties, Inc. / Earth Shield® Waterstop

- Exposed concrete joints in marine or coastal structures
- Retaining walls with prolonged sun exposure

Exposure to ultraviolet (UV) radiation can cause conventional rubber or plastic waterstops to degrade, leading to:

- Loss of flexibility
- Cracking and embrittlement
- Reduced sealing performance
- Premature failure

25811 Jefferson Avenue
Murrieta, CA 92562
T 19517637077
davidp@jpspecialties.com
<https://www.jpspecialties.com>

TPV waterstops overcome these limitations, offering long-term UV stability.

J P Specialties, Inc., a recognized leader in waterstop technology, manufactures the Earth Shield® TPV Waterstop series designed for extreme durability, including high UV resistance. JPS TPVs have been extensively tested for UV stability, showing minimal changes in mechanical properties even after thousands of hours of accelerated UV exposure. These attributes make JPS waterstops suitable for:

- Harsh sun exposure
- Tropical or desert climates
- Long-term, outdoor installations with minimal maintenance



JP Specialties, Inc. / Earth Shield® Waterstop

Key Takeaway: TPV waterstops, such as Earth Shield JPEB375 and JPEB350, offer superior longevity and reliability in UV-exposed conditions compared to conventional PVC or rubber waterstops.

Conclusion: Thermoplastic Vulcanizate (TPV) waterstops, such as the Earth Shield® JPEB375 and JPEB350, provide exceptional UV resistance, making them ideal for both buried and exposed concrete structures. The use of advanced TPV materials ensures long-term durability, flexibility, and performance under harsh environmental conditions, including continuous sun exposure.

For engineers, contractors, and specifiers seeking a reliable, UV-resistant waterstop solution, TPV waterstops represent a modern, high-performance alternative to traditional materials.

References:

JP Specialties, Inc., Earth Shield® Waterstop Technical Data

TPV Product Literature

TPV Technical Specifications

ASTM G154/G155 – Standard Practices for UV Exposure of Nonmetallic Materials

25811 Jefferson Avenue
Murrieta, CA 92562
T 19517637077
davidp@jpspecialties.com
<https://www.jpspecialties.com>